104,188

PATENT SPECIFICATION

Application Date, Jan. 17, 1916. No. 731/16.
Complete Left, July 17, 1916.
Complete Accepted, Feb. 19, 1917.

PROVISIONAL SPECIFICATION.

Improvements in Wireless Telegraph Transmitters.

We, GUGLIELMO MARCONI, G.C.V.O., D.Sc., and CHARLES SAMUEL FRANKLIN, Electrical Engineer, both of Marconi House, Strand, London, W.C., do hereby declare the nature of this invention to be as follows:—

This invention relates to improved means for timing the successive discharges of a condenser circuit or of a number of condenser circuits.

In Specification No. 11,371 of 1913 is described the timing of the discharges of relatively large condenser circuits by discharges of condenser circuits, therein, called trigger circuits, of smaller energy capacity and higher natural frequency, these trigger discharges being timed by a studded disk.

We have found that in order satisfactorily to start the discharge of a condenser circuit by means of such a trigger discharge, the maximum current value of the latter discharge must not be small in comparison to the maximum current value of the condenser discharge. If the trigger discharge is too weak, the main discharge may have a considerable time lag. The result is that when the energy capacity of the main circuit is increased, it is necessary to increase proportionally the energy capacity of the trigger circuit.

We have also found that the timing is most accurate when the trigger circuits have very small energy capacity, but deteriorates as the energy capacity is increased.

According to this invention we overcome the deterioration in the timing of the trigger discharge by providing an auxiliary or secondary trigger circuit of very small energy capacity and very high frequency. This circuit comprises a small condenser, the primary of an oscillation transformer and a disk discharger, which may be the same as that used for the principal trigger circuit. The secondary of the oscillation transformer, which is tuned by suitable means, is connected in the principal trigger circuit so as to time its discharges.

By the provision of such an auxiliary or secondary trigger circuit in addition to the principal trigger circuit, the dischagges of main condenser circuits of very large energy capacity can be more correctly timed and controlled than by using only one trigger condenser circuit.

Obviously, if considered desirable, a tertiary trigger circuit of still smaller energy capacity could be added to time the discharges of the secondary trigger circuit.

Dated the 17th day of January, 1916.

CARPMAEL & Co.,
Agents for Applicants,
24, Southampton Buildings, London, W.C.

[*Price 6d.*]

COMPLETE SPECIFICATION.

Improvements in Wireless Telegraph Transmitters.

We, **Guglielmo Marconi**, G.C.V.O., D.Sc., and **Charles Samuel Franklin**, Electrical Engineer, both of Marconi House, Strand, London, W.C., do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improved means for timing the successive discharges of a condenser circuit or of a number of condenser circuits.

In Specification No. 11,371 of 1913 is described the timing of the discharges of relatively large condenser circuits by discharges of condenser circuits, therein called trigger circuits, of smaller energy capacity and higher natural frequency, these trigger discharges being timed by a studded disk.

We have found that in order satisfactorily to start the discharge of a condenser circuit by means of such a trigger discharge, the maximum current value of the latter discharge must not be small in comparison to the maximum current value of the condenser discharge. If the trigger discharge is too weak, the main discharge may have a considerable time lag. The result is that when the energy capacity of the main circuit is increased, it is necessary to increase proportionally the energy capacity of the trigger circuit.

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Obviously, if considered desirable, a tertiary trigger circuit of still smaller energy capacity could be added to time the discharges of the secondary trigger circuit.

Our invention is illustrated in the accompanying diagram. A is a high tension direct current machine, or it may be a battery, adapted to charge through suitable inductances and resistances C, C^1, C^2, C^3, a main condenser D, a primary trigger condenser D^1 and a secondary trigger condenser D^2. G, G^1, G^2 are discharger disks mounted on the same shaft; they are not necessarily insulated from one another and in practice only one disk may be used, all the studs being mounted upon it. D, E, S, G, constitute the main condenser discharge circuit which is coupled to the aerial circuit. D^1, P^1, S^1, G^1, is the primary trigger circuit and D^2, P^2, G^2, the secondary trigger circuit.

The gaps at the dischargers G and G^1 are adjusted so that no discharge can take place from D and D^1 at the potential to which they are respectively charged by A..

The condensers F and F^1 tune the circuits S, F, and S^1, F^1, to the circuits D^1, P^1, S^1, G^1, and D^2, P^2, G^2, respectively. Thus when D^2 discharges through P^2 and G^2, the circuit S^1, F^1, is excited and a spark produced at the discharger G^1. This enables condenser D^1 to discharge, exciting the circuit S, F, and producing a spark at discharger G which starts the discharge of the main condenser D.

All the condensers need not be charged from the same generator; for instance, the main condenser might be charged from an alternator and the trigger condensers be charged from a direct current generator which would only require to be comparatively small.

The circuit D^2, P^2, G^2, being only required to time the discharges of the condenser D^1 which is of small energy capacity compared with D, the energy capacity of D^2 need only be very small and consequently the studs on G^2 may be small, can be set with great mechanical accuracy and will burn very slowly.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. In a wireless telegraph transmitter, the combination with a main condenser discharge circuit and a primary trigger circuit of a secondary trigger circuit adapted to time the discharge of the primary trigger circuit, substantially as described.

2. Wireless telegraph transmitters substantially as described with reference to the drawing.

Dated the 17th day of July, 1916.

CARPMAEL & Co.,
Agents for Applicants,
24, Southampton Buildings, London, W.C.

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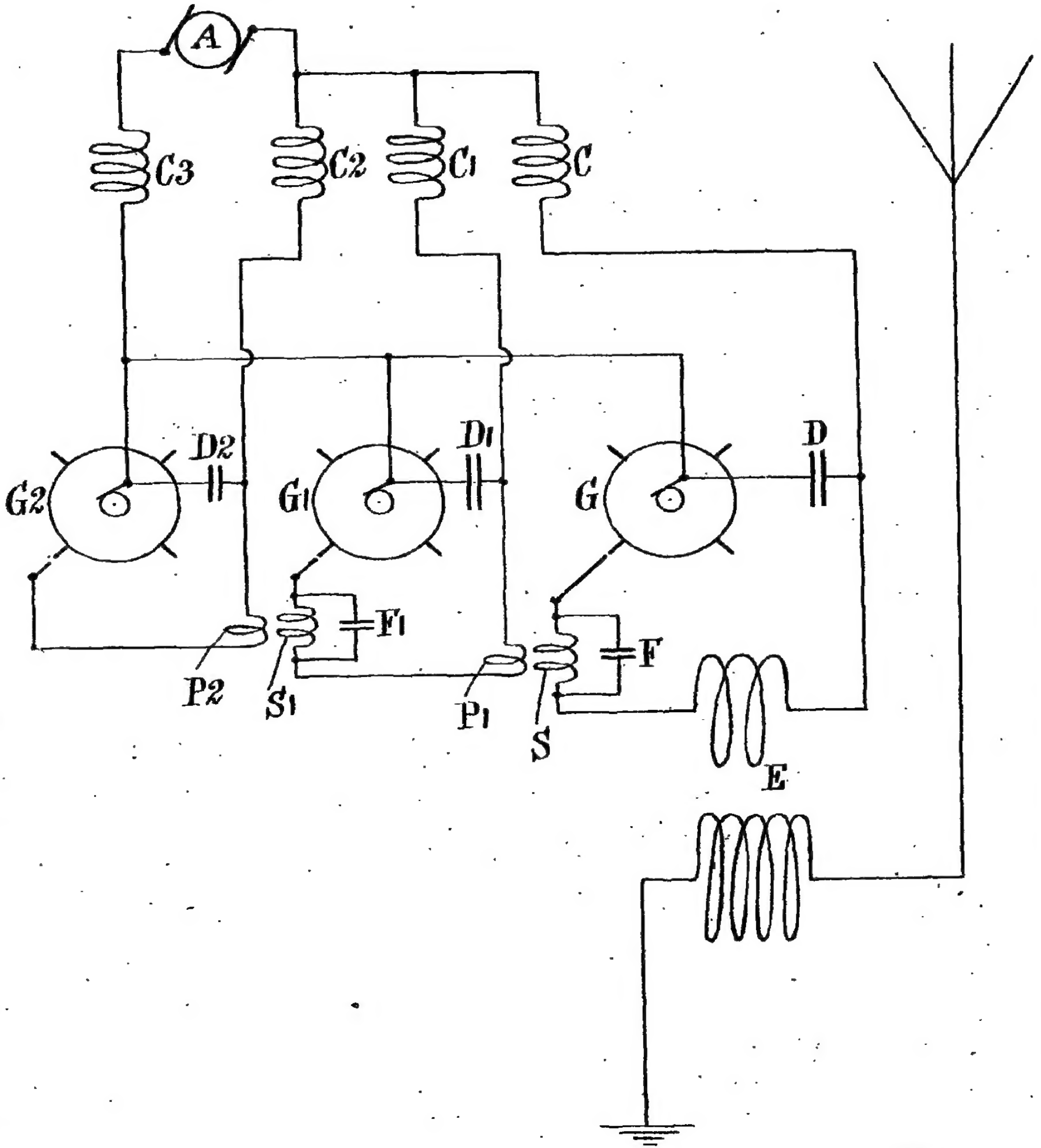
104,188. **MARCONI** & *another's* COMPLETE SPECIFICATION. *(1 SHEET)*

[This Drawing is a reproduction of the Original on a reduced scale.]



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